

REMARKSResponse To Objections/Rejections

Claims 1-40 have rejected under 35 U.S.C. 102 (a and b) as allegedly anticipated by or, in the alternative, under 35 U.S.C. 103(a) as supposedly obvious over *Koslowski* (U.S. Patent Nos. 5,015,449 and 5,015,450, hereinafter *Koslowski* '449 and '450") or *Van Geelan* (DE 2049028 - Abstract only). Specifically, the Office Action states as follows:

Koslowski teach a method of making calcium sulfate alpha hemihydrate using a pressure to form a molded body that would appear to overlap applicants' instantly claimed pressure thus anticipating the instant invention. Even if not anticipated, overlapping ranges of pressure and amounts of components would have been prima facie obvious to one of ordinary skill in the art.

Van Geelan teach making calcium sulfate alpha hemihydrate and teach using a pressure of 100 to 500 kg/sq cm thus anticipating the instant invention. Even if not anticipated, overlapping ranges of pressure and amounts of components would have been prima facie obvious to one of ordinary skill in the art.

It would appear that applicants' improvement over the prior art based upon their specification and claims is the formation under 14 Mpa of pressure a briquette which resolves prior problems with calcium sulfate alpha hemihydrate. Yet, it would appear that these references do teach treatment under pressure in a range that overlaps thus rendering applicants invention anticipated or at least obvious to one of ordinary skill in the art.

Office Action at 2-3. Applicants respectfully traverse for at the least the reasons detailed below. Specifically, with respect to the rejection under 35 U.S.C. §102, neither *Koslowski* nor *Van Geelan* teach or disclose all of the claimed elements. With respect to the rejection under 35 U.S.C. §103, neither *Koslowski* nor *Van Geelan* suggest all of the claimed elements. Further, neither *Koslowski* nor *Van Geelan* recognize the advantage of Applicants' claimed features, and indeed, *Koslowski* even teaches away from certain claimed features.

Response To Claim Rejections Under 35 U.S.C. §102

For a proper rejection of a claim under 35 U.S.C. Section 102(b), the cited reference must disclose all elements/features/steps of the claim. See, e.g., *E.I. du Pont de Nemours & Co. v.*

Phillips Petroleum Co., 849 F.2d 1430, 7 USPQ2d 1129 (Fed. Cir. 1988). Specifically, anticipation requires that each and every element of the claimed invention be disclosed in a single prior art reference. *See, e.g., In re Paulsen*, 30 F.3d 1475, 31 USPQ 2d 1671 (Fed. Cir. 1994); *In re Spada*, 911 F.2d 705, 15 USPQ 2d 1655 (Fed. Cir. 1990) (emphasis added).

- (a) Rejection of Claims 1-40 under 35 U.S.C. Section 102(a and b) as allegedly anticipated by *Koslowski*

Independent claim 1 recites “transforming the calcium sulfate dihydrate briquette to a calcium sulfate hemihydrate ($\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$) [alpha-type] (‘alpha-hemihydrate’) briquette....”

Independent claim 31 recites “wherein the clusters of crystals have substantially reduced pore volume between the clusters, than the pore volume of alpha-hemihydrate crystals formed from dihydrate briquettes compressed at pressures less than or equal to 14 megapascal (MPa).”

Independent claim 36 recites “calcium sulfate hemihydrate ($\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$) [alpha-type] (‘alpha-hemihydrate’) converted from a calcined calcium sulfate dihydrate briquette that was compressed at a pressure of greater than 14 megapascal (MPa)....” Applicants emphasize that each of the independent claims 1, 31, and 36 of the present application recites calcium sulfate dihydrate briquettes compressed at pressure greater than 14 megapascal (MPa).

Each of the independent claims 1, 31, and 36 is allowable for at least the reason that *Koslowski* does not disclose, teach, or suggest these features. More specifically, both *Koslowski* ‘449 and ‘450 teach that when compressing molded bodies of calcium sulfate dihydrate, “[a] pressure between 0.10 to 14 N/mm² is used. Advantageously the pressure should be between 1 to 5 N/mm², especially 2-3 N/mm².” *E.g., Koslowski* ‘449 at col. 7, lines 37-40 (emphasis added). Because 1 N/mm² = 1 MPa, Applicants’ claimed range of compressed calcium sulfate dihydrate at greater than 14 MPa is clearly outside of the range taught or disclosed by *Koslowski*.

For at least these reasons, *Koslowski* does not anticipate claims 1, 31, and 36. Applicants therefore respectfully request that the rejection be withdrawn.

If independent claims 1, 31, and 36 are allowable over the prior art of record, then their respective dependent claims 2-30, 32-35, and 37-40 are also allowable as a matter of law, because these dependent claims contain all features/elements/steps of their respective independent claims. *See Minnesota Mining and Mfg. Co. v. Chemque, Inc.*, 303 F.3d 1294, 1299 (Fed. Cir. 2002).

Additionally and notwithstanding the foregoing reasons for the allowability of claims 1, 31, and 36, these dependent claims recite further features/steps and/or combinations of features/steps, as apparent by examination of the claims themselves, that are patentably distinct from the prior art of record. Hence, there are other reasons why these dependent claims are allowable in view of *Koslowski*.

(b) Rejection of Claims 1-40 under 35 U.S.C. Section 102(a and b) as allegedly anticipated by *Van Geelan*

Independent claim 1 recites “calcining the [calcium sulfate dihydrate] briquette; transforming the calcium sulfate dihydrate briquette to a calcium sulfate hemihydrate ($\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$) [alpha-type] (‘alpha-hemihydrate’) briquette....” Independent claim 31 recites “clusters of crystals have [having] substantially reduced pore volume between the clusters, than the pore volume of alpha-hemihydrate crystals formed from dihydrate briquettes compressed at pressures less than or equal to 14 megapascal (MPa).” Independent claim 36 recites “calcium sulfate hemihydrate ($\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$) [alpha-type] (‘alpha-hemihydrate’) converted from a calcined calcium sulfate dihydrate briquette” Applicants emphasize that each of the independent claims 1, 31, and 36 of the present application recites calcium sulfate dihydrate briquettes that are used as the starting material in forming alpha-hemihydrate.

Each of the independent claims 1, 31, and 36 is allowable for at least the reason that *Van Geelan* does not disclose, teach, or suggest these features. More specifically, *Van Geelan* states that “alpha.- $\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$ useful for the production of gypsum plates was prepd- by mixing -beta.. – $\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$, e.g. stucco, with 3-9% H_2O , pressing pellets at 100-500 kg/cm², and treating the pellets with satd. steam at 110-150.degree. in an autoclave.” *Van Geelan* at Abstract (emphasis added). No where does *Van Geelan* teach or suggest using calcium sulfate dihydrate to prepare alpha-hemihydrate. Instead, *Van Geelan* uses the beta-type of calcium sulfate hemihydrate as its starting material.

For at least these reasons, *Van Geelan* does not anticipate claims 1, 31, and 36. Applicants therefore respectfully request that the rejection be withdrawn.

If independent claims 1, 31, and 36 are allowable over the prior art of record, then their respective dependent claims 2-30, 32-35, and 37-40 are also allowable as a matter of law, because

these dependent claims contain all features/elements/steps of their respective independent claims. Additionally and notwithstanding the foregoing reasons for the allowability of claims 1, 31, and 36, these dependent claims recite further features/steps and/or combinations of features/steps, as apparent by examination of the claims themselves, that are patentably distinct from the prior art of record. Hence, there are other reasons why these dependent claims are allowable in view of *Van Geelan*.

Response To Claim Rejections Under 35 U.S.C. §103

It is well established at law that, for a proper rejection of a claim under 35 U.S.C. §103 as being obvious based upon a single reference, the reference must disclose, teach, or suggest, either implicitly or explicitly, all elements/features/steps of the claim at issue. *See, e.g., In Re Dow Chemical*, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988), and *In re Keller*, 208 USPQ2d 871, 881 (C.C.P.A. 1981).

- (a) Rejection of Claims 1-40 under 35 U.S.C. Section 103(a) as allegedly obvious in view of *Koslowski*

With respect to *Koslowski*, the Office Action proposes that “[e]ven if not anticipated, overlapping ranges of pressure and amounts of components would have been prima facie obvious to one of ordinary skill in the art.” *Office Action* at 2. Applicants respectfully traverse. As noted above, there are no overlapping ranges of pressure. *Koslowski* teaches a pressure between 0.10 to 14 N/mm² (MPa). In each independent claim, Applicants claim a pressure of greater than 14 MPa. At least because there are no overlapping pressure ranges, Applicants’ claims are not obvious in view of *Koslowski* ‘449 or ‘450.

Additionally, a claim cannot be deemed obvious in view of a reference if the reference “teaches away” from the claim. *See In re Gurley*, 2 F.3d 551, 31 USPQ2d 1130, 1131 (Fed Cir. 1994). Specifically, “[a] reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant. ... in general, a reference will teach away if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant.” *Id.* (emphasis added).

This is directly on point with the present references. Both *Koslowski* '449 and '450 state as follows:

If one works in the right hand portion of FIG. 2 outside the shaded region in the graph, one of course obtains molded or formed bodies but they are not autoclavable without forming fractures or cracks and are destroyed during autoclaving. Still further in the right hand portion of the graph of FIG. 2 with constant moisture content but increasing pressure the molded or formed body sticks to the molding tool of the press. The pressure is thus adjusted so that the molded bodies parameters remain in the shaded region of FIG. 2. Basically a high starting moisture content increases the fracture or crack tendency in autoclaving, while a lower pressure reduces the tendency to crack the molded body during autoclaving.

E.g., *Koslowski* '449 at col. 7, lines 41-54. In view of *Koslowski* limiting the pressure range to 0.1 to 14 N/mm² and the graph of FIG. 2, a pressure range of "greater than 14 MPa," as taught in the claims, is clearly disclaimed. Based on the quoted language from *Koslowski* above, one skilled in the art would be discouraged from pressing the briquettes at a pressure range greater than 14 MPa. For at least this reason, *Koslowski* teaches away from the present claims. Thus, *Koslowski* '449 and '450 do not render obvious the present claims. Applicants respectfully request that the rejection of claims 1, 31, and 36 be withdrawn.

If independent claims 1, 31, and 36 are allowable over the prior art of record, then their respective dependent claims 2-30, 32-35, and 37-40 are also allowable as a matter of law, because these dependent claims contain all features/elements/steps of their respective independent claims. Additionally and notwithstanding the foregoing reasons for the allowability of claims 1, 31, and 36, these dependent claims recite further features/steps and/or combinations of features/steps, as apparent by examination of the claims themselves, that are patentably distinct from the prior art of record. Hence, there are other reasons why these dependent claims are allowable in view of *Koslowski*.

- (b) Rejection of Claims 1-40 under 35 U.S.C. Section 103(a) as allegedly obvious in view of *Van Geelan*

Here, the Examiner proposes that the teachings of *Van Geelan* render the present claims obvious because “it would appear that these references do teach treatment under pressure in a range that overlaps thus rendering applicants invention anticipated or at least obvious to one of ordinary skill in the art.” *Office Action* at 2. While the pressure range of *Van Geelan* of 100-500 kg/cm² (*i.e.*, 10-50 MPa) may overlap with Applicants’ claimed pressure ranges of greater than 14 MPa, there are other features of the claims that are not taught by or obvious in view of *Van Geelan*.

As noted above, each of the independent claims 1, 31, and 36 of the present application recites calcium sulfate dihydrate briquettes that are used as the starting material in forming alpha-hemihydrate. In contrast, *Van Geelan* teaches preparing alpha-hemihydrate by starting with beta-hemihydrate. Therefore, for at least these reasons, *Van Geelan* does not disclose, teach, or suggest these features.

Applicants further submit it would not have been obvious to one of ordinary skill in the art to substitute the beta-hemihydrate with the dihydrate used in the present claims 1, 31, and 36. The U.S. Court of Appeals for the Federal Circuit has stated that “[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.” *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992) (citing *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984)) (emphasis added). There has been no hint or suggestion by *Van Geelan* to modify it in a manner to arrive at the starting material of calcium sulfate dihydrate of the independent claims 1, 31, and 36, instead of beta-hemihydrate taught by *Van Geelan*.

Additionally, with respect to other claimed features not found in the art relating to specific composition ingredients and percentages, the Examiner makes the blanket statement that the present claims would be “obvious to one of ordinary skill in the art.” *Office Action* at 2 and 3. When the Board of Patent Appeals and Interferences rejected a need for any specific hint or suggestion in the art to combine references, this was recently held to be legal error. *See In re Lee*, 277 F.3d 1338 (Fed. Cir. 2002). The Board held that the Office “cannot rely on conclusory statements when dealing with particular combinations of prior art and specific claims, but must set forth the rationale on which it relies.” *Id.* at 1345. Further, the court stated that the specific

teaching that would have suggested the claimed combination must be present and subjective belief could not be relied on. While the Office has not combined references in the present Action, Applicants believe that this proposition nevertheless holds true in the present case. In the outstanding Office Action, the conclusory statement of the obviousness of the claims at issue in view of the cited references is improper.

For at least the reasons that *Van Geelan* does not teach or suggest all of the claimed features, and has been improperly modified, Applicants respectfully submit that the Office has not met its burden of making a *prima facie* case of unpatentability under 35 U.S.C. 103. Therefore, Applicants request that the rejection of claims 1, 31, and 36 be withdrawn.

If independent claims 1, 31, and 36 are allowable over the prior art of record, then their respective dependent claims 2-30, 32-35, and 37-40 are also allowable as a matter of law, because these dependent claims contain all features/elements/steps of their respective independent claims. Additionally and notwithstanding the foregoing reasons for the allowability of claims 1, 31, and 36, these dependent claims recite further features/steps and/or combinations of features/steps, as apparent by examination of the claims themselves, that are patentably distinct from the prior art of record. Hence, there are other reasons why these dependent claims are allowable in view of *Van Geelan*.

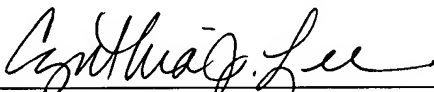
Prior Reference Made of Record

The prior reference made of record but not relied upon to support a rejection has been considered, but is not believed to affect the patentability of the presently pending claims.

CONCLUSION

In light of the foregoing amendments and for at least the reasons set forth above, Applicants respectfully submit that all rejections have been traversed, and that the pending claims 1-40 are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephone conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

Respectfully submitted,



Cynthia J. Lee, Reg. No. 46,033

**THOMAS, KAYDEN,
HORSTEMEYER & RISLEY, L.L.P.**
Suite 1750
100 Galleria Parkway N.W.
Atlanta, Georgia 30339
(770) 933-9500